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FORAGE FOR RANGE AND RANCH

Bulletin 120

Devoted to the Interest of Cattlemen,
Dairymen and all Live-Stock Breeders



One of the Phalaris Steepers

AGGELER & MUSSER SEED CO.

620 South Spring Street

Los Angeles, Calif.

WEST VALLEY SLOW GROWING TREES

MR. DAIRYMAN AND STOCKMAN,
READ, THIS

POULTRYMEN

To the small stock breeder and poultryman you will find in this bulletin just as much of interest to you as to the large breeder. Read it carefully.

HOW TO PLANT SMALL GRASS SEED

GOING A STEP BY THE CORRUGATED SYSTEM

THE SMALL RANGE

This precaution may seem impractical and unwarranted, but should you expect valuable grasses to grow with less attention than would be given other crops?

Segment Planter. A good thing to plant grass seeds in rough places.



Napier Grass as a Wind Break

NAPIER

Pennisetum Purpureum

The Right Way to Plant Vanier Joists

For field pasture or browsing we recommend planting two feet apart in rows three feet apart.

NAPIER (Continued)

For frequent cutting we advise planting twelve inches apart each way; thus one plant to each square foot will quickly fill the space solidly with succulent green feed that may be pastured or cut frequently for hay or green feed for chickens, rabbits or goats.

The grass is also said to possess drouth resistant qualities to a marked degree, but it will thrive best where soil moisture is not lacking.

In a discussion of this grass as found in a state of nature in Tropical Africa the author says:

"It occurs along watercourses and in marshy depressions, but also enters the bush and forest where open spaces afford sufficient light. - In rich marsh land it attains a height of 21 feet, while in drier soils it only grows 6 feet high."

During the past year Napier grass has received considerable advertisement. In some cases over enthusiasm has led to error and exaggeration and the impression has become more or less prevalent that this grass will produce very large crops on practically any type of land and that it requires little or no cultivation. This belief is based upon a misapprehension. Plantings made during the past year indicate that results will vary directly with the fertility of the soil, and the amount of moisture. Its habit of growth is like millet and is about as easily eradicated as kafir corn. It grows very rapidly and may be cut when 3 or 4 feet high, supplying a heavy crop of green feed or hay. In nutritive value and palatability, Napier Grass is not excelled by any similar non-leguminous feed. When cut at the height of 3 or 4 feet, the stubble is in a tender growing condition. This tends to promote a quick and vigorous growth and insures a maximum number of good cuttings during the growing season, yielding about 3 tons or more of dry hay per acre each cutting, and it has been known



Guinea

Napier

Just Five Months' Growth from Dormant Joint

TABLE 1 (Continued)

NAPIER. DROUGHT RESISTANT

GUINEA GRASS

Guinea Grass

RHODES GRASS

Write Department of Agriculture, Washington, D. C.

Ask for Farmers' Bulletin No. 1048

Was discovered in South Africa by Cecil Rhodes in 1893 and developed by him on his farm from a few handfuls of seed he found wild. It was taken to New Zealand and Australia and is responsible for the development of the sheep industry there. It was named in honor of Mr. Rhodes. About 12 years ago it was brought to Florida where it became known as the East Coast Grass, and where it made records of wonderful growth.

For first hand information we are indebted to Mr. C. J. Renfrew, who with Mr. W. D. Beatty have 320 acres of Rhodes Grass growing at Niland, Cal. The soil is heavy and salty, for this land borders on the Salton Sea. They are cutting it six times a year and two tons per cutting.

After two years' experience with Rhodes Grass, Mr. Renfrew says of it: "It is a plant which thrives well in warm climate. It is perennial in a temperature above 48 degrees and thrives at 125 degrees. It stands drouth remarkably and will endure much neglect and pasturing. It does not scald in hot weather from excessive moisture like alfalfa. It is highest in protein of any grass tried. Stock like it and will not show bloat."

Rhodes Grass will drive out Bermuda and other weeds because of its dense growth. It is easily controlled by being plowed once and let stand for sixty or ninety days. It adds humus to the soil.

The best time to plant Rhodes Grass is from March 1st to September 1st.

The soil must be well prepared by thorough pulverizing then corrugated (see page 4). Broadcast 11 pounds of seed per acre, going over the field twice once north and south and east and west sowing 7 pounds each way. Keep the soil continually moistened until the grass is established. It grows so rapidly that the first cutting may be had the sixth week. Do not pasture until after the second cutting.

Price per lb. \$1.00 postpaid. Write for quantity price.

Another year of experience with Rhodes Grass has added much to its popularity. It might be claiming too much to say that for a permanent pasture field it excels alfalfa, but it is no exaggeration to say it has a wider usefulness, because it will thrive on soil too alkaline for a falfa. It will endure more drouth, more pasturing, more neglect, and will support as many head of stock per acre.

The following extract is from the U. S. Department of Agriculture Bulletin 1048:

Rhodes Grass was first cultivated because of its pasture value. It bears trampling well, recovers quickly after it is eaten down, and is relished by all kinds of live stock. In pastures favorably located, Rhodes Grass will support about two steers to the acre for 9 to 10 months and double that number during the more favorable parts of the year. The quality of hay made from Rhodes Grass is superior to that of most other grasses in that it contains a larger proportion of leaves, while the stems are slender, tender, and sweet, so that the hay is eaten with very little waste. It retains its color well in drying, therefore making an attractive bale for market.

Mr. McArthur of this city planted twenty acres near Holtville in Imperial Valley, on soil that was white with alkali. He is very enthusiastic concerning it. He says it is the most valuable grass that has ever come to Southern California. There is no longer any excuse for waste places; every acre of alkali soil may now be converted into valuable grazing land.

The following was copied from the Orchard & Farm, contributed by Dr. P. B. Kennedy (Grass and Forage Plant Investigation), University of California:

"Rhodes Grass hay is sweet and tender, and well liked by all classes of stock. It has an attractive appearance and lends itself admirably to baling for market. One to two tons per acre would be considered a poor yield, and might be expected on poor soils with insufficient irrigation, while on good soils with ample irrigation and a long season, eight tons per acre may be reasonably expected. The grass grows very rapidly during the warm summer, thirty days being sufficient to produce a cutting, but as the season advances and the mean temperature becomes lower, the growth becomes less rapid.

PASTURE PLANT

Perhaps the best way to utilize Rhodes Grass is to make two cuttings of hay and then pasture for the remainder of the season. Continuous grazing is not to be recommended, although the plant withstands pasturing well. We have not as yet determined the carrying capacity of Rhodes Grass for California conditions, but the reports from other states are really remarkable. A very conservative estimate would be three cows per acre for eight months.

Since California must from now on produce more forage under intensive cultivation we believe this to be one of the grasses that will help to solve the livestock problem.

Experience with feeding Rhodes Grass in Imperial Valley has been very profitable, and it is believed that it will be a valuable addition to the agricultural and cattle products of that region.

Rhodes Grass does not grow underground sprouts like Johnson or Pennsylv Grass, but sends runners over the surface like strawberry tops. It is easily eradicated.



Just Six Months' Growth from One Joint



A PROTECT BROTHER GRASS BY THE TRIAL RECORD

HARDING GRASS

Phalaris amabilis
 International Circular No. 25
 (See Field Notes)

Plants
H. v. per 100
 F. O. B.

3.50 lb
 postpaid

It is recorded in the U. S. National Botanical Garden that this description is the same as the original. The seed of the Harding Grass is considered and, showing a very high percentage of purity and quality. It is a very hardy and without any special conditions to the great extent of the field. The seed is of the first quality and the plants are very hardy and without any special conditions to the great extent of the field. It is a very hardy and without any special conditions to the great extent of the field.



Phalares Stenoptera.

abundant and palatable pasturage or hay without irrigation. It furnishes succulent feed during the winter season when alfalfa is dormant.

The seed germinates quickly and readily with the first fall rains, and even though the very fine hair-like seedlings are exposed to severe frosts they are not injured. It grows rapidly and produces large clumps the first season.

The foliage is devoid of hairy coverings of any kind, and is free from rust, thus tending toward a clean hay and palatable pasturage. During the first season the flower-bearing stems are comparatively few and grow only about two feet high. During the second season a dense leafy mass three feet high is produced with the flower-bearing stems four to six feet high, depending on the rainfall.

Feeding experiments with calves in co-operation with Dr. Wood at the University Farm at Davis, show that the winter growth of the grass is very much liked and that it compares very favorably with alfalfa as a feed. All classes of stock are partial to it.

Small trial plots at Berkeley have also done well although the growth is much slower.

F. B. KENNEDY

Grass and Forage Plant Investigation—Opposite to Berkeley.

At the University of California, Berkeley, California, and also the University of California, Davis, California, the following results have been obtained:

Winter Feed: F. W. Woll Says of It

For the winter feed, the following results have been obtained: (The following results are from the University of California, Berkeley, California, and also the University of California, Davis, California.)

The results of the following tests and feed experiments on the winter feed of the University of California, Berkeley, California, and also the University of California, Davis, California, are as follows:

Composition of Harding Grass

Water	88.00%
Protein	11.75%
Fat (free extract)	1.00%
Fibre	1.00%
Nitrogen—free extract	24.15%
Ash	10.00%
	100.00%

The sample was cut after a period of about 100 days in the section which, however, did not seem to hurt the grass appreciably. The grass was 6 to 12 inches high at this time. Cuttings taken during the growing season when the grass grew to a height of 3 to 4 feet or more on this plot would doubtless show a lower percentage of protein and a higher fibre content, but the results of the analysis of the sample submitted show, beyond a doubt, that this grass is exceptionally high in protein, fat and mineral matter and suggests that it will prove a most valuable addition to the list of California forage plants. Feeding trials with the grass conducted with stock at the University Farm showed that it is very palatable to dairy cows, sheep and goats.

I shall watch with great interest further developments in introducing this grass, and making its merits known to the stock-men of the State. It would appear to me that it is a very remarkably promising plant that may prove of considerable value to our stock interests.

Very truly yours,

(Signature) F. W. WOLL.

Prof. of Animal Nutrition.

(The King of All Winter Grasses)

For cold districts Phalaris is the grass. It seems to thrive on the cold, and grows an inch a day or more in the depth of winter. Thoroughly perennial, and makes a valuable and permanent pasture. Can also be made into hay. Plant from March to June at the rate of 2 to 3 pounds per acre. Can also be established from roots planted from May to August, about 18,000, eighteen inches apart, being required to cover an acre.

J. D. THOMSON,
Altadena.

Mr. Thomson says also that after cutting his Harding Grass for seed the plot lay dormant until September; then, without any irrigation, it started to grow, and before rainfall made considerable growth.

Dear Sirs:

Regarding the Harding Grass (Phalaris Stenoptara) I wish I could get more. Having a few seeds in 1918 I planted them in 6 times, beginning Oct. 12, the last planting being on March 25th. I am well pleased with the results, although it does not grow very high in our granite soil, it is the only grass I know of that will pay here.

A. LAFORGE,
Newcastle,
California.

AUSTRALIAN SALTBUSSH

(*Atriplex semibaccata*)



Australian Saltbush Growing by the Roadside

One plant growing by a roadside on clay soil having had no moisture other than the season's rainfall.

Cardinal points: For range near the coast or interior lowlands where fogs are of frequent occurrence—any kind of soil—endures much alkali—thrives with a minimum of moisture—very succulent during winter, spring and early summer, when it is relished by all stock—becomes parched by heat in late summer, then it is less palatable to stock, but they will thrive if forced by hunger to eat it—it seeds freely. Requires no preparation of soil for seeding. Cannot cut and dry as hay—has one tap root—easily eradicated.

Per lb. \$1.00 postpaid. Write for quantity price.

The best way to get a stand of Saltbush is to sow broadcast the seed during the months of January and February. Five pounds of seed will sow one acre broadcast.

Saltbush has made a new record which establishes a value. Heretofore, this has not been appreciated, although for years we have tried to make plain that its principal use was for sheep and goat pasture.

Mr. Maurer, who has large interests in the San Clemente Islands, and maintains large herds of sheep and goats, states that were it not for the several hundred pounds of Saltbush he purchased from us several years ago he would, undoubtedly, have lost his herd. If you have any waste land, sow Saltbush; it may be depended upon when all else fails.

Had the owners of Guadaloupe wisely sown Saltbush seed over their island several years ago they would not have found it necessary to ship their herds to the mainland, entailing much expense and inevitable loss of animals.

Fire may devastate the range and destroy all dry forage in its path, but the Saltbush being perpetually green is absolutely uninjured by fire.

COCKSFOOT

(*Dactylis glomerata*) also called Orchard Grass

Cocksfoot (Dactylis glomerata) is a grass and is a native of Europe. It is a very hardy and the leaves are similar to those of New Zealand. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe.

Cocksfoot will grow well under a wide range of conditions. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe.

The young plants of Cocksfoot are very hardy and are a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe.

This grass is a very hardy and is a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe.

Also the young plants of Cocksfoot are very hardy and are a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe.

Price 25. 000 postpaid. Write for quantity price.

RUSSIAN BROME GRASS

(*Bromus inermis*)

Russian Brome Grass is one of our hardiest perennial grasses. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe.

The following information is from Mr. J. C. Knoll, Editor, Orchard and Farm, "During 1911 and '12 I had charge of a large farm in Wisconsin County (East) near the city of Moscow City.

There is a patch of about two months' winter land in the bottom of a small creek. One spring we seeded a small patch of land in the bottom of a small creek. One spring we seeded a small patch of land in the bottom of a small creek. One spring we seeded a small patch of land in the bottom of a small creek.

It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe.

Price per lb. 75c postpaid.

Russian Brome Grass is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe. It is a very hardy grass and is a native of Europe.

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BERMUDA GRASS

(*Cynodon dactylon*)

Bermuda Grass is a very hardy perennial, the creeping stems of which produce nodules or joints at short intervals. Each joint is capable of producing a new plant, though commonly reported from all the corners. These stems have been known to survive 2 to 12 years in a dormant season under the most unfavorable conditions for growth. While the joints remain in contact with the soil, they can sprout once more roots and the soil.

It also produces a single upright stem and the succumb to the death of frost. These stems spreading outward several feet from the base, and the upright stems are numerous ascending or prostrate, depending upon the height of the plant in height.

This grass, which will grow and flourish against and most feared by most planters because of the difficulty of eradicating it in cultivation, and is at once very low in value to the seed and joint, and most valuable to the great value as a pasture grass under all conditions. Lands well adapted to Bermuda grass, and in many instances considered the most valuable property in the southern States, it is strictly a summer grass as it grows best when the heat is greatest, the more profuse the growth. It stays green in the spring, grows slowly in hot and turns brown in the earliest frosts of autumn but it grows high or through the jungle of the summer. While it grows best in good soils, no grass in the south will flourish so much faster and better when grown in poor sandy, galled or worn soils. It has much power to withstand heat and drought. Though apparently dormant in drought it will quickly re-appear when moisture comes. It will also withstand inundation better than any other grass. A valuable grass grown in the south. But it does not succeed well in the shade, hence it is not well adapted to being grown in groves.

This grass is beyond question the most valuable pasture grass in the south. It will flourish grazing on soils too poor to grow other crops, will flourish more and better grazing than any other southern grass and will also stand close grazing and more trampling under all conditions than any other. All kinds of live stock on the farm are fond of it. At all stages of development until smitten by frost. It also makes excellent and valuable hay, more palatable and nutritious than that made from blue grass.

Bermuda Grass also renders excellent service in preventing erosion in soils and in binding the same. It will hold together the most acid and loose sands when once set in them. It has no superior in forming a sod on ditch banks and ravines.

Strictly speaking, Bermuda Grass is not a rotation plant. Because of the difficulty found in eradicating this grass and because of its continuity in growth, its highest use is found in permanent pastures.

When land is to be laid down to Bermuda Grass, the cleaner it is, and the better its condition, the sooner will a stand of the grass be secured, and the greater will be the returns from it.

The seed is not only low in germinating power, but the young plants from the seed grow so slowly that they are much liable to injury from the crowding of weeds unless well cared for.

A pound of seed should sow one-fifth to one-third of an acre. The method of sowing the seed in drills would doubtless be preferable.

Bermuda Grass is unquestionably the best pasture grass in the south viewed from the standpoint of palatability, productiveness and endurance. There are reasons for believing that in its proper sphere it will produce more grazing and more meat than blue grass under the most favored conditions. Sheep can graze upon it from 7 to 9 months in the year according to the locality.

In seasons of much drought the plants will, on some soils, appear to die, but when rain comes they will revive again with surprising quickness. Overflow during the growing season rather encourages the growth of this grass but for a time it usually injures grazing by the sediment deposited on it.

Bermuda Grass becomes sod bound after a few seasons of pasturing or mowing, hence where practicable it is recommended to break it up by plowing and smoothing the ground quite soon thereafter with the harrow; plowing it thus loosens and aerates the soil, breaks up the matted roots and brings new life to the plants.

Per lb. \$1.00 postpaid. Write for quantity price.

SMILO GRASS

(*Oryzopsis Milineae*) Many Flowered Millet

Recommended by the University of California) is a hardy evergreen perennial, drought-resistant bunch grass that thrives on dry hills among rocks and brush and is a wonderful producer when planted in good soil, but must have sufficient moisture to get a good root system before the dry season. It also thrives under trees.

Smilo seed originally came from Southern Europe, where it is considered one of the best forage grasses.

Smilo will not become a pest, as it has fine fibrous roots which penetrate very deep, but is easily cultivated out.

Smilo grass does not do well planted thick. Plant in drills about 14 inches, using from $\frac{1}{4}$ to $\frac{1}{2}$ pound of seed per acre. Thin to one every 14 inches in row. When sown broadcast, sow very thin and hoe out the surplus roots.

Do not plant seed over $\frac{1}{4}$ inch deep. Better sow on top of ground and harrow lightly. When planted deep we have known Smilo to lie in the ground two years, but as soon as brought to the surface and got sufficient moisture it came up and made a good stand.

Smilo grass is a slow grower the first year until it gets a good strong root system (unless irrigated), when it is a good producer and will stand many months without moisture.

When possible plant seed before fall rains, during September and October, so it may get a good root system before the cold weather and will stand the following dry season.

In a small way plant seed in a seed bed, using the same care you would in planting a lawn. At the beginning of the rainy season transplant to permanent place, setting the roots straight down with the bulb about one inch below the surface.

We have a limited amount of seed which will be sent postpaid. Packet 50c one pound \$3.25, 10 pounds \$25.00 postpaid. Good, well rooted.

Plants 75c per 100 postpaid; \$4.00 per 1000 f.o.b. here.



Two years ago a brush fire got started on our hills. Before the rainy season started we sowed several pounds of Smilo seed broadcast over the burnt stumps. As it did not rain for several weeks we feared the birds would get all the seed. Consequently, on this hill land, that for ages has produced nothing but brush and wild animals, we pastured several head of horses all summer. The last week I rented it for a nice sum to Burt Erwin, lessee of the 9000-acre old Spreckels ranch, who has 35 head of his work horses and mules in my pasture.

G. D. STEAD, San Diego County.

PASPALUM DILATATUM

Paspalum Dilatatum

Per lb. 75c postpaid. Write for quantity price.

RED TOP

(*Agrostis vulgaris*)

Red Top is a perennial grass which grows from a few inches to two feet in height under varying conditions of soil and climate. But the average height is probably 18 to 24 inches.

Just off the coast of Maryland it was a well recognized grass. Some time since it was introduced along with milkweed which introduced it into the soil. It is now more easily recognized as a common grass than a few years ago. It is now found in the soil with the weeds and grasses of the field. It is now found in the soil with the weeds and grasses of the field.

The Red Top is a well known grass. It is now found in the soil with the weeds and grasses of the field. It is now found in the soil with the weeds and grasses of the field.

No other grass is so well known. It is now found in the soil with the weeds and grasses of the field. It is now found in the soil with the weeds and grasses of the field.

The Red Top is a well known grass. It is now found in the soil with the weeds and grasses of the field. It is now found in the soil with the weeds and grasses of the field.

Price per lb. 15c postpaid. Per 100 lbs. 25c f.o.b. here.

PERENNIAL RYE GRASS

(*Lolium perenne*)

Also called Pasture Rye. Introduced by the oldest cattle raised grass of the state. It is now found in the soil with the weeds and grasses of the field. It is now found in the soil with the weeds and grasses of the field.

Sow in the fall with barley, oats, wheat or alfalfa to be cut for hay. It is excellent for fattening cattle.

Sow 20 pounds per acre. Per 100 lbs. 50c postpaid.

ITALIAN RYE GRASS

(*Lolium Italianum*)

Grows earlier at maturity than Perennial and produces a large amount of nutritious forage. Its duration being but two or three years. It is not adapted for permanent pastures but highly valuable for rotation of crops. It is specially adapted for sowing in autumn with oats, barley, rye or clover, as a winter crop for fattening stock. Per 100 lbs. 35c postpaid.

BARLEY AS A WINTER PASTURE

Several other plants furnish good winter pasture, but none are so valuable as Barley. It affords grazing earlier, more abundantly. It recovers more rapidly after being grazed down. It is more relished by stock and more wholesome. It stands up so that stock can eat it with less dirt or other objectionable matter, and it is never affected by rust.

Sown in September it affords good grazing until May, but if the stock are taken off in March, a good crop of grain may be harvested.

For this purpose sow 100 pounds per acre and irrigate if needed.

Barley sown in an alfalfa field during October will make good pasture during the winter when alfalfa is dormant, or it may be grown for hay without injury to the alfalfa.

SWEET CLOVER

MELILOTUS ALBA

For a more complete notice of *Melilotus Alba* (Sweet Clover) with full list of States Department of Agriculture, Washington, D. C., for Farmers' Bulletins 251, 527 and 528.

Two copies of the report of this clover and its application for clover, alfalfa and other uses in the State of New York, East of the Hudson River, will be sent upon request to the State Department of Agriculture, Albany, N. Y.

The New York State Department of Agriculture, Albany, N. Y., will send a copy of the report of this clover and its application for clover, alfalfa and other uses in the State of New York, East of the Hudson River, upon request.

Melilotus Alba. This is a common perennial in the eastern part of the United States. It is a very hardy plant, and is found in all parts of the country. It is a very good pasture plant, and is also used for hay. It is a very good soil enricher, and is also used for green manure. It is a very good plant for the farmer, and is also used for the stockman. It is a very good plant for the farmer, and is also used for the stockman. It is a very good plant for the farmer, and is also used for the stockman.

21 Reasons for Planting Melilotus Alba

1. It is not a weed.
2. Like alfalfa it is rich in protein.
3. Will not bloat cattle or sheep.
4. Equal to alfalfa for pasture.
5. Is a great milk producer.
6. Furnishes early spring pasture.
7. Contains more protein than red clover.
8. Fits well in the crop rotation.
9. Is a great soil enriching crop.
10. Better than any of the common clovers as a green manure crop.
11. Is a valuable plant for honey bees.
12. Prepares the soil for alfalfa.
13. Roots are soft and give no trouble in plowing.
14. Roots being tender become inoculated more readily than alfalfa.
15. Never damages cultivated crops.
16. Its roots decay rapidly, adding much nitrogen and humus to the soil.
17. Grows and will produce a crop in all parts of the United States.
18. Seeds freely in both humid and dry sections.
19. Sweet clover prevents erosion.
20. Will grow under conditions where clover and alfalfa fail:
 - (a) On land too low, too wet, or too alkaline for alfalfa;
 - (b) On land too hard and compact for alfalfa;
 - (c) On soil too poor for alfalfa, especially where there is lime.
21. It is immune to nematodes.

Now read again these twenty-one reasons for planting *Melilotus Alba* and see where it suits your particular case.

Sweet Clover and Alfalfa Hay Compared

The Massachusetts State Station Report for 1894 gives the following analyses of sweet clover at different stages of growth:

	Digestion coefficient.						
	Dry		Nitro- gen				
	matter.	Ash.	Pro-	Crude	free ex-	Fat.	
	Pct.	Pct.	tein.	fibre.	tract.	Pct.	Pct.
Oat Straw	54.83	48.79	25.72	54.13	57.21	49.97	
Sweet Clover hay (M. alba) ..	60.88	65.79	75.46	33.63	72.04	30.94	
Alfalfa hay (1st cutting) ..	61.95	47.04	77.56	46.04	73.29	38.46	
Alfalfa hay (2nd cutting) ..	64.25	55.33	79.55	46.12	75.60	44.75	



(Sweet Clover) 'Bullhorn'
Melilotus Albi

SWEET CLOVER

It may have been shown as a common weed. For this reason
pages of the book will be devoted to it.

By P. H. Holden, Director, Agricultural Extension Department,
International Harvester Company of New Jersey.

For many years we have known Sweet Clover—*Melilotus albus*—as a common weed. It is a common weed, but it is not a weed. It is a plant that has been introduced from Europe and has become a part of our natural vegetation. It is a plant that has been introduced from Europe and has become a part of our natural vegetation. It is a plant that has been introduced from Europe and has become a part of our natural vegetation.

The great value of Sweet Clover is its ability to grow in poor soil and to produce a large amount of hay. It is a plant that has been introduced from Europe and has become a part of our natural vegetation. It is a plant that has been introduced from Europe and has become a part of our natural vegetation. It is a plant that has been introduced from Europe and has become a part of our natural vegetation.

As the population of the United States increases, the need for food and fiber becomes more and more acute. Sweet Clover is a plant that has been introduced from Europe and has become a part of our natural vegetation. It is a plant that has been introduced from Europe and has become a part of our natural vegetation. It is a plant that has been introduced from Europe and has become a part of our natural vegetation.

When all other crops have been harvested and killed by the frost, the only crop that is left standing is Sweet Clover. It is a plant that has been introduced from Europe and has become a part of our natural vegetation. It is a plant that has been introduced from Europe and has become a part of our natural vegetation. It is a plant that has been introduced from Europe and has become a part of our natural vegetation.

In answer to the many inquiries received as to when where and how to sow sweet clover, or melilotus, the following will prove successful in this region:

When to Sow.—The best results are obtained by sowing in early spring as soon as the ground is dry and warm enough to put in condition for a good shallow seed-bed—this latitude April 1 to 15, before spring rains. In the South where the rainfall is copious in winter, fall plowing will be better.

Where to Sow.—Any place on the farm, especially on the poor, worn-out spots, fence rows, ditches. It prevents erosion.

How to Sow.—Preferably in a fine shallow seed-bed on a firm sub-soil. If sown before a rain it needs no harrowing. Always cover very lightly, as deep seeding is unsuccessful. Corn stubble, or any ground cropped the preceding year, by discing and harrowing, putting the top two inches of soil in fine condition, is suitable for sowing. Always cover seed shallow. Without nurse crop preferred.

General Remarks.—With a favorable season and good stand it can be pastured without injury to the plant in about 10 weeks. The first season, pasture or cut crop of hay; the second season, pasture, hay or seed. It is most valuable as continuous pasture, when it will reseed itself without thought or care of the grower.

It will never bloat stock, horses, cattle, sheep or hogs, turned out at any time, even in rain or dew. A good stand will pasture 20 head of hogs to the acre. Ring the hogs. The bitter taste of sweet clover is caused by the presence of cumarin, which prevents the bloating. It does not affect flavor of milk. Sweet clover will thoroughly inoculate the land for alfalfa, as the bacteria of both plants are the same. Sow 12 to 15 pounds per acre.

A Few Don'ts

Don't plow deep.

Don't sow deep.

Don't cut low in mowing—at least 6 inches high.

Don't have subsoil loose.

Don't be afraid to sow sweet clover

Melilotus Alba for the Range

Mr. Stockman, as soon as you read this send for some seed of this Sweet Clover and just to get a start sow at the rate of one pound per acre all over your range. On any kind of soil. If not pastured too closely you will soon have a valuable range for your stock.

The same advice applies also to Smilo.

Sow also Burr Clover on heavy soil and Alfilaria on any kind of soil.

BURR CLOVER

Like Alfilaria is native to the southwest and thrives best on adobe soil, enduring considerable alkali. It starts growing as soon as the fall rains set in and with a minimum of rainfall such as we have in "dry years" it grows luxuriantly, bearing enormously of seed pods. When mature the whole plant dries, forming a mat of good cured forage relished by all stock. **Per lb. 40c postpaid.**

BEST CROPS FOR THE SILO

Now that you have the silo you want to grow the best and most productive crops.

Indian Corn heads the list as recommended by the Department. Aggeler & Musser Seed Co. have at all times endeavored to give their customers the best of everything, therefore we make the following recommendations as to varieties of corn that will produce the most tonnage.

Branching corn for rich land. It grows more stem, more foliage, and more ears than any other variety of Indian corn. As for grain, Mr. Newbill says it yields just twice as much grain as other varieties.

Orange County Prolific and Eureka Ensilage are about equal as to the tonnage they will produce. Mr. King, formerly of Long Beach, said the former is sweeter and on that account is to be preferred. Hickory King is an old favorite hard to beat. If for any reason planting is delayed until July 15th, plant King of the Harvest.

If you have only a sand soil, use an irrigation water from June. It may always be counted upon to produce a big ear.

For the silo, corn should be cut with the grain heads to harden.

Next to Indian Corn, Dwarf Mil. & Co. are named as the best non-saccharine sorghum because of its wonderful rooting property and enormous yield of grain.

But when this recommendation was accepted we had not yet introduced our Wonder Sorghum (Sudan Sorghum). This easily surpasses all other sorghums, saccharine or non-saccharine. (See the picture.)



Sudan Sorghum—The Wonder Forage Plant

SUDAN SORGHUM (Continued)

other sorghum. Seed planted April 3rd the plants averaged six feet high on June 1st, on August 1st were 12 feet high and ready for the silo. Plants cut July 1st produced a good second crop. Its growth was not checked by the cold weather during April as were other sorghums growing beside it. Cultivate as a sorghum, 5 lbs of seed is sufficient for one acre. **Price of seed, 60c per lb. postpaid.**

Mr. M. C. Connell planted seed in June. August 15th he made the first cutting. It stood ten to twelve feet high, full headed. The tops are panicle squared and, because of the multitude of stools, it easily leads other varieties in quantity of grain, none of which is lost in harvesting, which was done with an alfalfa mower. About October 1st it will be ready for second cutting, which he says, may be done with the same mower by raising the blade. Mr. Connell says also that it is the ideal sorghum for the silo because it is sweeter than non-saccharine and has less sugar content than saccharine, therefore it is less likely to ferment. Consider the green stalks to be good.

Next in line of sorghums for ensilage is the Silver Chaff Seeded Ribbon and the Improved Sorghum.



Sudan Sorghum

THE SIZE OF SILO TO BUILD

Cows	Thoms Required Daily	Size of Silo Grain Feet	Height Feet	Cu Yards
10	340	10	20	22
20	360	12	24	34
30	520	16	30	47
40	600	12	36	55
50	800	12	42	79
60	1000	12	48	94
70	1200	14	31	104
80	1400	14	38	128
90	1600	16	34	143
45	1800	16	38	167
50	2000	16	40	180

Based on 40 lbs. per cow a day

One ton of hay requires 500 cubic feet of storage space, while one ton of silage requires only 50 cubic feet.

The best dairymen feed about forty pounds of ensilage, with two pounds each of bran and oil meal daily to each cow in order to secure the maximum milk production.

SUDAN

Write College of Agriculture, Berkeley, Cal., for Bulletin No. 277



SUDAN GRASS

Sudan Grass

This is a very hardy and productive grass, growing from 3 to 6 feet high. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses.

The grass is very hardy and productive. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses.

Sudan grass is a very hardy and productive grass. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses.

When grown in rows it is a very good feed for cattle and horses. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses.

Per 20, 400 postpaid. Write for complete price.



JAPANESE SUGAR CANE

This is considered one of the most prolific of all sweet sorghums with the advantage of being a permanent source of supply. It produces no seed, but is propagated by planting joints like Napier. (See page 6.)

Price of Joints, Per Dozen, \$1.00 Postpaid
100 Joints, \$6.00 Postpaid



BRANCHING CORN

The largest corn stalk you ever saw. Two ears on main stem and five branches with one ear on each branch.

AGGELER & MUSSER SEED CO.

FARMERS BULLETIN 170

FORAGE FOR RANGE AND RANCH



1 Paspalum Grass
2 Guinea Grass
3 Napier Grass

4 Rhodes Grass
5 Napier Grass
6 Rhodes Grass

1 Italian Rye Grass
2 Australian Rye Grass
3 Red Top Grass